Bonneville Power Administration
Fish and Wildlife Program FY98 Watershed Proposal Form

Section 1. General administrative information

Title of project.

Develop, Analyze & Map Clearwater Basin Bull Trout Dist., Strength & Trends

Bonneville project number, if an ongoing project 8040

Business name of agency, institution or organization requesting funding
Clearwater Bull Trout Technical Advisory Team/Idaho Department of Fish and Game

Business acronym (if appropriate)

Proposal contact person or principal investigator:

Name	Gregg Servheen
Mailing Address	1540 Warner Ave
City, ST Zip	Lewiston, ID 83501
Phone	208-799-5010
Fax	208-799-5012
Email address	gservhee@idfg.state.id.us

Subcontractors.

Organization	Mailing Address	City, ST Zip	Contact Name
Nez Perce National Forest	Rt 2, Box 475	Grangeville, ID 83530	Scott Russell
Clearwater National Forest	Powell Ranger District	Lolo, MT 59847	Jim Capurso
Idaho DEQ		Lewiston, ID 83501	Daniel Stewart
Potlatch Corporation	805 Mill Road	Lewiston, ID 83501	Terry Cundy

NPPC Program Measure Number(s) which this project addresses.

NMFS Biological Opinion Number(s) which this project addresses.

Other planning document references.
State of Idaho Bull Trout Conservation Plan

Subbasin.
Clearwater

Short description.
Pool existing databases and historical data; analyze data to determine population strengths, trends, and distribution; develop prioritized recommendations for monitoring needs and population conservation

Section 2. Key words

Mark	Programmatic Categories	Mark	Activities	Mark	Project Types
	Anadromous fish		Construction	*	Watershed
X	Resident fish		O & M		Biodiversity/genetics
	Wildlife		Production	X	Population dynamics
	Oceans/estuaries		Research		Ecosystems
	Climate	X	Monitoring/eval.		Flow/survival
	Other		Resource mgmt		Fish disease
			Planning/admin.		Supplementation
			Enforcement		Wildlife habitat en-
			Acquisitions		hancement/restoration

Other keywords.
distribution/abundance, database analyses

Section 3. Relationships to other Bonneville projects

Project #	Project title/description	Nature of relationship

Section 4. Objectives, tasks and schedules

Objectives and tasks

Obj 1,2,3	Objective	Task a,b,c	Task
1	Develop a comprehensive bull trout and brook trout database for the Clearwater basin	a	Gather electronic databases from cooperators

2	Determine curent and historic bull trout distribution	b	Match and rectify fields and measures of cooperator databases using the lowest common denominator closest to Streamnet structure and definitions
3	Determine bull trout population trends and relative population strengths	c	Search for and enter all other data, and reports, and records of bull trout distribution using Streamnet structure and definitions
4	Map bull trout and brook trout population information	d	Proof developed datbase for data entry error
5	Develop recommendations for coordinated bull trout monitoring standards and priorities	e	Analyze database for bull trout population distribution by stream, 6th code HUC, key watershed, and basin
6	Summarize population status and trends	f	Where consecutive surveys allow, determine bull trout population strength indicators and trends. Where possible, stratify by channel type, stream, key watershed, and basin
		g	Map bull trout population distribution and abundance by stream reach and 6th code HUC watershed
		h	Map bull trout population distribution and abundance by stream reach and 6th code HUC watershed
		i	Develop recommendations for maintaining and updating bull trout database
		j	Prioritize and specify location and type of bull trout monitoring efforts in the Clearwater basin
		k	Using trend data and literature, summarize population status at relevent scales
		l	Provide recommendations on management needs for species conservation

Objective schedules and costs

Objective #	Start Date mm/yyyy	End Date mm/yyyy	Cost %
1	3/1998	4/1998	20.00%
2	4/1998	5/1998	20.00%
3	5/1998	6/1998	25.00%
4	6/1998	7/1998	25.00%
5	7/1998	8/1998	5.00%
6	7/1998	8/1998	5.00%
			TOTAL 100.00%

Schedule constraints.
Schedule changes and delays may be caused by problems standardizing and integrating at least 6 different cooperator databases. Software compatibility, database structure, and data measure differences may extend project past anticipated deadline.

Completion date.
1998

Section 5. Budget

FY99 budget by line item

Item	Note	FY99
Personnel	1 fisheries biologist @ $15/hr for 9 mos	$14,400
Fringe benefits	30% of salary costs	$4,300
Supplies, materials, non-expendable property	Office supplies, computer software, and printer/plotter	$5,500
Operations & maintenance	Vehicle repair and maintenance	$ 500
Capital acquisitions or improvements (e.g. land, buildings, major equip.)		
PIT tags	# of tags:	
Travel	Vehicle rental, fuel and per diem for travel between cooperator offices for coordination	$1,500
Indirect costs	15% of total	$3,900
Subcontracts		
Other		
TOTAL		$30,100

Outyear costs

Outyear costs	FY2000	FY01	FY02	FY03
Total budget				
O&M as % of total				

Section 6. Abstract

Bull trout are proposed for listing under the endangered species act. Idaho's bull trout conservation plan makes interagency technical teams responsible for developing problem assessments for bull trout key watersheds. Historically, the Clearwater and Nez Perce National Forests, the Idaho Department of Fish and Game, the Nez Perce Tribe, Potlatch Corporation, Plum Creek, the U.S. Fish and Wildlife Service, and the Bureau of Land Management have surveyed for and recorded fisheries survey information within the Clearwater Basin. These data vary by focus, method, type, description, and measure. Our objective is: to combine data to determine bull trout trend, distribution, and population strength at appropriate scales; to develop a measure of historic bull trout distribution; to map bull trout distribution and status; and develop monitoring and management priority recommendations for cooperators and watershed advisory groups. The project will produce a single database including historical distribution (pre-1985), survey date; sample location; coordinates; survey method; EPA stream reach; and species size and density for bull and brook trout that is compatible with Streamnet. The database will be used to summarize and map bull trout distribution and trend in the Clearwater Basin and make management and monitoring reccomendations for a coordinated conservation effort among project cooperators.

Section 7. Project description

a. Technical and/or scientific background.

Bull trout *(Salvelinus confluentus)* is the least studied salmonid in Idaho (Schill 1992). While general historical bull trout distribution is believed to have approximated that of spring, summer, and fall chinook salmon in Idaho (Thurow 1987); presence/absence and population strength data is lacking. The status and distribution of bull trout is difficult to determine because the species exhibit migratory and resident life forms and may be either fluvial or adfluvial. In the Snake River basin, their historic range approximates that of spring, summer and fall chinook salmon (Thurow 1987). Resident and migratory life forms may live together, but it is not know if they represent single or separate populations (Rieman and McIntyre 1993). To prioritize habitat conservation efforts in focal habitats (Frissell 1993) sustaining healthy meta-populations (Gilpin 1987); existing and historical bull trout data collected by State (Idaho Department of Fish and Game, Idaho Department of Environmental Quality), Federal (Clearwater and Nez Perce National Forests, Bureau of Land Management, Natural Resource Conservation Service, U.S. Fish and Wildlife Service), and other (Potlatch Corporation, Plum Creek Timber Co., Nez Perce Tribe)

cooperators require consolidation and analysis. A comprehensive bull trout database will allow implementation of the State of Idaho's bull trout conservation plan (1996), and is the first step required of the technical advisory team apppointed by the Governor and Clearwater Basin Advisory Group.

b. Proposal objectives.

Objective 1: Develop a comprehsive bull trout database for the Clearwater Basin.

The project will gather existing and historical (pre-1985) bull trout data and information collected by State (Idaho Department of Fish and Game, Idaho Department of Environmental Quality), Federal (Clearwater and Nez Perce National Forests, Bureau of Land Management, Natural Resource Conservation Service, U.S. Fish and Wildlife Service), and other (Potlatch Corporation, Plum Creek Timber Co., Nez Perce Tribe) cooperators. The project will produce a single database including historical distribution (pre-1985), survey date; sample location; coordinates; survey method; EPA stream reach; and species size and density for bull and brook trout compatible with Streamnet structures and definitions.

Objective 2. Determine current and historic bull trout and brook trout distribution.

Distribution will be determined from comprehensive database at the stream reach, 6th, 5th, and 4th code HUC scale.

Objective 3. Determine bull trout population trends and relative population strengths in where consecutive survey data allows.

Bull trout database will be analyzed for bull trout presence/absence data in consecutive population surveys to develop trend indices. The database will be analyzed for population strength indices using fish density, age class, and distribution, and spawning and rearing fields. Scale of population analyses will be broad (4th and 5th code HUC) because of limited survey information.

Objective 4. Map bull trout population information for problem assessments and monitoring and management recommendations.

Using a GIS interface, the bull trout and brook trout population distribution database will be used to map information at the stream reach, 6th, 5th, and 4th code HUC. Fish species distribution data will be overlayed with existing threats and limiting factors information layers including road densities, timber harvest, livestock grazing, mining, hydroelectric developments, fire history, and recreation.

Objective 5. Develop recommendations for coordinated bull trout population monitoring efforts.

Make monitoring recommendations based on existing population strengths, information gaps, and needs to develop population trend measures. The prioritized monitoring recommendations will consider cooperative and synergistic interagency efforts.

Objective 6. Summarize population status and trends with prioritized management recommendations for bull trout conservation.

Make management recomendations to reduce threats to bull trout populations based on existing population strengths and distribution. Prioritize recommendations based on decreasing existing threats to: 1) focal, 2) adjunct, and 3) nodal populations and habitats.

c. Rationale and significance to Regional Programs.

Bull trout conservation and water quality protection best occur at the watershed level (State of Idaho Bull Trout Conservation Plan 1996). Full implementation of Idaho's Bull Trout Conservation Plan will provide for beneficial uses and water quality standards more beneficial to bull trout and salmonid spawning criteria. The Idaho plan is being implemented under an amendment to Idaho Code (39-3601) designed to strengthen water quality protection, improve compliance with the Federal Clean Water Act, and develop total maximum daily load (TMDLs) for water quality limited streams in Idaho. The Clearwater Basin has 220 water quality limited streams designated. Most of these streams provide for both anadromous fish and resident fish populations and habitats.

The bull trout technical advisory team, appointed by the Basin Advisory Group and acting under authority of restructured water quality laws in Idaho (SB 1284), represents all the public agencies, Native Americans with treaty rights, and private landowners in the Clearwater Basin that can provide technical expertise for bull trout conservation. To prohibit further impairment of the beneficial uses in each waterbody, the technical team in cooperation with basin and watershed advisory groups, may make interim changes in best management practices for nonpoint sources to prohibit further impairment of beneficial uses. Therefore, this project provides a innovative and cooperative opportunity to use fisheries and hydrology expertise within the Clearwater basin to gather existing databases, develop a data compatibility, measure bull trout distribution and population strengths, and provide monitoring and management recommendations using all existing data.

d. Project history

e. Methods.

Bull trout data in the Clearwater basin is limited. Therefore, it is extremely important that all existing information be pooled to develop appropriate problem assessments for bull trout conservation as well as to develop a coordinated monitoring plan. Population distribution will be summarized and mapped based on all bull trout observations and

records in the basin. Population strength indices (fish density by age classes) will be limted by the amount and type of consecutive observation. Similarly, population strength curves based on fish densities and year classes will be limited by the quality and type of survey data.

f. Facilities and equipment.

The fisheries biologist/statistician position will be housed by the Idaho Department of Fish and Game in their regional office in Lewiston. Photocopying, phone, FAX, and e-mail, word processing, and network support will be provided by existing office facilities. Project database analysis, manipulation, and mapping, will require purchase of computer database and spreadsheet software, a laptop computer, and color plotter or printer by the project. IDFG will provide vehicle for transportation to and from cooperator offices and meetings.

g. References.

Gilpin, M.E. 1987. Spatial structure and population vunlerability. in: Soule, M., ek. Viable populations for conservation. New York: Cambridge University Press;125-139.

Leary, R.F., F.W. Assendorf, and S.H. Forbes. 1993. Conservation genetics of bull trout in the Columbia and Klamath River drainages. Conservation Biology. 7(4): 856-865.

Rieman, B.E. and J.D. McIntyre. 1993. Demographic and habitat requirements of bull trout. United States Forest Service, Intermountain Research Station, General Technical Report INT-302, Boise, Idaho.

Schill, D.J. 1992b. Bull trout aging and enumeration comparisons. Idaho Department of Fish and Game, Boise. Job Performance Report, F-73-R-13.

State of Idaho. 1996. Bull Trout Conservation Plan. Boise, Idaho. 123 pp.

Thurow, R. 1987. Evaluation of the South Fork Salmon River steelhead trout fishery restoration program. Lower Snake River Fish and Wildlife Compsensation Plan Contract No. 14-16-0001-86505. Job Completion Report. Boise, Idaho: Idaho Department of Fish and Game. 154 pp.

USDA Forest Service. 1994 (draft). An assessment of the conservation needs for bull trout. (Compiled by R. Stowell, P. Howell, B. Rieman, and J. McIntyre). 32 pp.

Section 8. Relationships to other projects

The Idaho bull trout conservation plan utilizes the BAG (basin advisory group) and WAG (watershed advisory group) to provide for local development of watershed specific plans to maintain and/or increase bull trout populations. State and federal agencies, Treaty

Right Tribes, and private landowners provide technical assistance by participation and membership in the TATs (technical advisory teams) to the BAGs and WAGs, and make recommendations for protection of bull trout. The TATs establish a scientific framework for implementing the bull trout plan by providing current and scientific data on bull trout, water quality, and land management to the BAGs and WAGs. The TAT support of basin and watershed citizen advisory groups may include: accumulating and interpreting data, identifying and ranking information needs, assisting in monitoring coordination, establishing fieldwork coordination and protocols, prioritizing streams within each watershed, identifying options for habitat restoration, adequacy review of initial recovery plans and/or protection measures, review schedule and coordinate agency actions and implementation, and establish protocols for review of actions to assure objectives are being met.

The state of Idaho's Bull Trout Conservation Plan's use of an interagency technical team enhances coordination and utilization of current survey data, scientific information, expertise, and knowledge. However, efforts in combining data sets are essential to develop priorities for monitoring and management within the context of bull trout conservation rather than existing and past agency priorities. This project will accelerate bull trout conservation by completing this essential need.

This project proposal relates to Section 3 of the Northwest Power Planning Council's Fish and Wildlife Program, which calls for a coordinated implementation, research, and monitoring process. Sections 3.1D of the Fish and Wildlife Program also specify using an ecosystem approach to populations, giving priority to watershed and coordinated watershed programs. Section 3.2F of the Power Planning Council's Fish and Wildlife Program calls for developing regional strategies to rebuild fish and wildlife populations and analytical tools for linking programs measures to rebuilding and restoration strategies. The objectives of this project will contribute to these goals and to objectives 3.3A (Coordinated Information System), 3.3B (Anadromous Fish Data Base), and 3.3C (Scientific Information Data Base) in the Fish and Wildlife Program.

Section 9. Key personnel

The project manager and cochairman of the Clearwater Basin bull trout technical committee is Gregg Servheen. Gregg is the Natural Resources staff biologist for the Idaho Department of Fish and Game in the Clearwater Region. Please see attached resume for specifics.

The Clearwater Basin Bull Trout Technical Team is comprised of: Daniel Stewart - Water Quality Specialist - Idaho Department of Environmental Quality, Jim Capurso - Fisheries Biologist - Clearwater National Forest, Dana Weigel - Fisheries Biologist - Nez Perce Tribe, Scott Russell - Staff Fisheries Biologist - Nez Perce National Forest, Mike Faler - Fisheries Biologist - U.S. Fish and Wildlife Service, Terry Cundy - Hydrologist - Potlatch Corporation, Greg Watson - Fisheries Biologist - Plum Creek Timber Company, Ralph

Roseberg - Fisheries Biologist - U.S. Fish and Wildlife Service, Craig Johnson - Biologist - Bureau of Land Management.

The fisheries biologist/statistician to be funded under this proposal is to be assigned contingent on funding.

RESUME

Gregg Servheen
Idaho Department of Fish and Game
1540 Warner Ave.
Lewiston, ID 83501

Education and Training

B.Sc. in Fish and Wildlife Sciences - University of Massachusetts - 1980

M.S. in Fish and Wildlife Management - Texas A & M University - 1983

10 years professional experience in Fish and Wildlife Conservation

Professional Achievements

Chairman, Interagency Bull Trout Technical Team

Developed GIS-based land use project for conservation of fish and wildlife habitats in county planning.

Developed policy and legislation for Idaho big game outfitter allocation.

Developed GIS database on Idaho big game outfitters.

Idaho Wildlife Federation Conservationist of the Year

Professional Experience

- Natural Resource Staff Biologist - 1995 - present
- Venture 20 Project Leader 1992 - 1995
- Regional Wildlife Biologist 1989 - 1992
- Senior Wildlife Research Biologist 1987 - 1989

Writing and Publications

Servheen, G., S. Blair, D. Davis, M. Gratson, K. Leidenfrost, B. Stotts, J. White, and J. Bell. 1997. Interagency Guidelines for managing elk habitats and populations on USFS lands in Central Idaho. U.S.D.A. Forest Service and Idaho Department of Fish and Game. 62 pp.

Groves, C., T. Fredrick, G. Fredrick, E. Atkinson, M. Atkinson, J. Shepard, and G. Servheen. 1997. Density, distribution, and habitat of flammulated owls in Idaho. Great Basin Naturalist 57: 116-123.

Servheen, G., T. Cochnauer, J. Adams, B. Stotts, W. McLaughlin, and N. Sanyal. 1996. Development and implementation of an integrated process for improved fish and wildlife management. Wildl. Soc. Bull. 24:667-672.

Blair, S. and G. Servheen. 1995. A species conservation assessment and strategy for the white-headed woodpecker., U.S.D.A. Forest Service. Region 1, Missoula, Montana. 49pp.

Warren, C.D., J.M. Peek, G.L. Servheen, and P. Zager. 1995. Habitat use and movements of two ecotypes of translocated caribou in Idaho and British Columbia. Conserv. Biol. 10:547-553.

Compton, B. B., P. Zager, and G. Servheen. 1995. Survival and cause-specific mortality of woodland caribou. Wildl. Soc. Bull. 23:490-496.

Servheen, G., J. Adams, D. Bryson, T. Cochnauer, B. Stotts, N. Sanyal, and W. McLaughlin. 1994. The Venture 20 project: development of an integrated process for managing fish and wildlife between the Idaho Department of Fish and Game, Nez Perce National Forest, Clearwater National Forest, and Nez Perce Tribe. 140pp.

Servheen, G. and M.D. Scott. 1989. Selkirk Mountain caribou habitat selection. in R. Page ed. A Workshop of caribou research and management in British Columbia Kamloops, B.C. 1985. British Columbia Forest Service, Victoria, B.C.

Servheen, G. and L.J. Lyon 1989. Habitat selection of Selkirk Mountain caribou. J. Wildl. Manage. 53:230-237.

Section 10. Information/technology transfer

Bull trout and brook trout database produced will be incorporated into Streamnet. Bull trout distribution and population strength information will be avialable and utililzed using a GIS format. Monitoring and management recommendations will be incorporated into 6 watershed problem assessments (North Fork of the Clearwater, Lochsa-Selway, South Fork of the Clearwater, middle Salmon River, lower Salmon River, and lower Clearwater

River) being developed and written by the Clearwater Basin Technical Advisory Team. A comprehensive monitoring plan for bull trout will be developed among cooperators.